



Daylight Redirecting Window Film

What is this Technology?

Daylight redirecting window film (DRF) redirects daylight that enters through the upper portion of windows to the ceiling, where it is reflected and diffused deeper into interior workspaces. These window films enhance the distribution and availability of natural light in buildings that would otherwise require more substantial architectural modifications, such as larger windows or light shelves. Using microstructures, DRF has the potential to increase the daylighting zone in a perimeter space as much as threefold, while reducing glare. Daylight redirecting film technologies range in transmittance from transparent to semi-opaque, and installation on the inside of the window is simple and nonpermanent.

Why is GSA Interested?

GSA spends approximately \$36 million annually on lighting energy. A previous GPG assessment demonstrated 27% average lighting energy savings from daylight harvesting. Daylight redirecting film provides a simple solution for maximizing the presence of natural light while controlling glare. Also, research has shown that an increase in daylight can lead to an increase in occupant satisfaction.



ENERGY EFFICIENCY The typical daylight zone is equal to the height of the window. This technology increases that zone up to threefold. Lighting energy savings from daylight harvesting are projected to be between 20% and 60%.



COST-EFFECTIVENESS DRF can be installed cost-effectively as a retrofit. Payback will be impacted by variables such as window location, orientation, sunlight, climate, lighting energy costs, and access to daylight dimming lighting controls.



OPERATIONS & MAINTENANCE Research studies have shown that access to natural light can increase occupant satisfaction, productivity, and physical and psychological health. The benefits of daylight have been associated with improved mood, enhanced morale, lower fatigue, reduced eyestrain, and improved circadian rhythm.



DEPLOYMENT POTENTIAL This retrofit technology is best suited for facilities with open-offices, floor plans that are between 20 and 40 feet deep, and south-facing windows with unobstructed access to direct sunlight and at least 18 inches of glass above eye level.

The Green Proving Ground program has commissioned Lawrence Berkeley National Laboratory to perform real-world measurement and verification of daylight redirecting window film in a pilot installation in a federally owned building within GSA's inventory. Findings from the evaluation are anticipated to be available in 2017.



The Green Proving Ground program leverages GSA's real estate portfolio to test innovative building technologies. The program helps GSA meet its sustainability goals by providing actionable data that informs investment decisions targeted at energy-use reduction.